ASSIGNMENT 6

Textbook Assignment: "Indicators," chapter 5, pages 5-1 through 5-27.

6-1. Which of the following systems supply information displayed on the HSIs and BDHIs?

1. Communication systems
2. Radar systems only
3. Navigation systems only
4. Radar/navigation systems

6-2. In the HSI group, which, if any, of the following components are interchangeable between the pilot's, copilot's, and NAV/COMM's station?

1. HSI group controls only
2. HSI group indicators only
3. HSI group controls and indicators
4. None of the above

6-3. On the ID-1540/A horizontal situation indicator, what is the reference line for reading the aircraft's heading on the compass card?

1. The lubber line
2. The bearing line
3. The marker line
4. The range line

IN ANSWERING QUESTIONS 6-4 THROUGH 6-8, SELECT FROM COLUMN B THE FUNCTION OF THE HSI ITEMS LISTED IN COLUMN A. SOME ITEMS IN COLUMN B WILL BE USED MORE THAN ONCE.

A. HSI ITEMS	B. FUNCTIONS
6-4. Bearing pointer No. 1	1. Indicates the lubber line
6-5. COURSE indicator	2. Points to the bearing of the selected navigational point
6-6. To-From indicator	
6-7. Bearing pointer No. 2	3. Displays the course arrow setting in a digital readout in degrees
6-8. Aircraft symbol	4. Indicates whether the selected course is going toward or away from the selected beacon station

6-9. What component controls the inputs to the pilot's HSI?

1. A208
2. A279
3. A280
4. A309

6-10. The HDG selector switch on the pilot's HSI control selects which of the following heading signal sources for display on the HSI compass card?

1. INS-1 and INS-2
2. INS-1 and STBY GYRO
3. INS-2 and STBY GYRO
4. Vertical gyro and STBY GYRO

6-11. On the pilot's HSI control, the ATTD selector controls which of the following sources of attitude signals for the pilot's FDI sphere?

1. INS-1 and INS-2
2. INS-1 and STBY GYRO
3. INS-2 and STBY GYRO
4. Vertical gyro and STBY GYRO

6-12. On the pilot's HSI control, with the BRG 1 switch in DA, the COURSE HSI-FDI selector switch must be in what position to receive signals from the central computer?

1. TACAN
2. VOR-1/ILS
3. VOR-2
4. TAC NAV

6-13. The BRG 1 switch selects the source of the bearing signal displayed on the bearing pointer 1 on which of the following HSIs?

1. Pilot's, copilot's, and TACCO's
2. Pilot's, NAv/COMM'S, and TACCO's
3. Copilot's, NAV/COMM'S, and TACCO's
4. Pilot's, copilot's, and NAV/COMM's

6-14. On the copilot's HSI control, the ATTD selector controls which of the following sources of attitude signals for the copilot's FDI sphere?

1. INS-1 and INS-2
2. INS-1 and STBY GYRO
3. INS-2 and STBY GYRO
4. Vertical gyro and STBY GYRO

6-15. The BRG 2 switch on the copilot's HSI control selects the source of the bearing signal displayed on the bearing pointer 2 on which of the following HSIs?

1. Pilot's and copilot's
2. Copilot's and NAV/COMM's
3. Copilot's and TACCO's
4. TACCO's and NAV/COMM's

6-16. When there is a failure with the heading function in the central repeater system, what indicator illuminates on the NAV/COMM HSI control?

1. DIST NO-GO
2. ATTD BEARING NO-GO
3. INS NO-GO
4. HEADING NO-GO

6-17. Which of the following signals are selected for display on the NAV/COMM HSI by the NAV/COMM HDG switch?

1. MAG and TRUE heading signals
2. INS-1 and INS-2 heading signals
3. INS-1 and MAG heading signals
4. INS-2 and TRUE heading signals

6-18. What indication appears on the HSI with VOR-1 selected if the input signal from VOR-1 becomes unreliable?

1. VOR-1 NO-Go
2. NAV NO-GO
3. VOR-1 flag
4. NAV flag

6-19. What signal will be supplied to the HSI by the UHF-DF/OPTI and the ADF systems when either is selected?

1. Bearing signal
2. To-From signal
3. Course deviation signal
4. NAV flag signal

6-20. On the HSI, when a tactical mode is selected, true heading information is switched out of the circuit, and the compass card will be driven by magnetic heading information.

1. True
2. False

6-21. What is/are the quantity of pointers on a BDHI?

1. One
2. Two
3. Three
4. Four

6-22. From what reference is the BDHI compass card read for aircraft heading?

1. Pointer No. 1
2. Pointer No. 2
3. Lubber index
4. Lubber line

6-23. The BDNI distance counter consists of how many total synchro torque receivers to position the numerals?

1. Five
2. Two
3. Three
4. Four

6-24. The visual display system used by aircrew to search for, attack, and destroy the enemy is commonly called the

1. MDS
2. PDS
3. SDS
4. TDS

6-25. To display attack information to the pilot, the electro-optical display system uses what type of source?

1. Electronic
2. Light
3. Analog
4. Digital

6-26. The electro-optical sight system used by the pilot is the

1. EOD
2. EODU
3. HUD
4. HUDU

6-27. Which of the following sources provide(s) aircraft performance data?

1. Bore sight reference
2. Aircraft systems
3. Tactical computer set
4. Aircraft flight sensors

6-28. The transparent mirror that displays information to the pilot in the HUD set is called a

1. reflector
2. combiner
3. mirror/reflector
4. windscreen

IN ANSWERING QUESTION 6-29 REFER, TO FIGURE 5-8 IN THE TEXTBOOK.

6-29. Which of the following information is/are NOT processed by the signal data processor for the head-up display unit?

1. Bore sight reference
2. Discrete signals
3. Tactical computer input
4. Aircraft flight sensor data

6-30. The HUD set signal data processor input receivers operate on which of the following channels at the same time?

1. One and two; three and four
2. One and three; two and four
3. One and four; two and three
4. One, two, three, and four

6-31. The identity signal for the HUD set input receivers of the signal data processor consists of how many total bits of data?

1. 24
2. 20
3. 13
4. 10

6-32. What digital computer section of the HUD set signal data processor distributes the clock pulses?

1. Control logic
2. Sequence control
3. Symbol generator
4. Processor counter

6-33. The symbol generator operates in three major modes. Each mode is dependent on the other, and all are completed simultaneously.

1. True
2. False

6-34. During the sixth and seventh operations of the line mode, what action occurs with respect to the X and Y data?

1. X data is shifted
2. Y data is shifted
3. The X and Y channel rate registers are shifted by the symbol generator
4. The BITE circuits check all data in the X and Y channel rate registers for correctness

6-35. The symbol generator samples the HUD busy signal for what reason?

1. To decode information
2. To generate a self-test mode
3. To transfer data to the HUD immediately
4. To transfer data to the HUD when it is ready

6-36. When the circle mode of operation in the symbol generator is being used, the circle is drawn (a) in what direction and (b) begins at what point on the CRT?

1. (a) Clockwise (b) top
2. (a) Clockwise (b) bottom
3. (a) Counterclockwise (b) top
4. (a) Counterclockwise (b) bottom

6-37. What is the purpose of the bright-up pulse delay in the circle mode of the signal generator?

1. To compensate for the slow response time of the deflection circuits in the HUD
2. To compensate for the fast response time of the deflection circuits in the HUD
3. To turn off the symbol generator
4. To turn on the signal generator

6-38. What voltage is applied to the CRT anode of the HUD?

1. 5,000 volts
2. 10,000 volts
3. 15,000 volts
4. 20,000 volts

6-39. The electrical power used for the operation of the standby reticle of the HUD is obtained from what source?

1. The high-voltage power supply
2. The low-voltage power supply
3. Outside of the HUD
4. The HUD battery

6-40. In the optical module of the HUD, what is the purpose of the autobrilliance sensor?

1. To detect ambient light changes
2. To adjust output voltage level to the sensor
3. To amplify manual brightness input signals from the control panel
4. To detect ambient light changes and amplify output voltage level to the sensor

6-41. At what rate are the symbols drawn on the CRT of the HUD video module?

1. 15 times per second
2. 25 times per second
3. 50 times per second
4. 100 times per second

6-42. What control(s) the symbol brightness of the CRT in the HUD?

1. The X and Y bright-up signal
2. The X and Y amplifiers
3. The control grid circuit of the CRT
4. The cathode bias circuit

6-43. Which, if any, of the following ordnance information is available to the pilot on the AVA-12 HUD?

1. Armed/unarmed
2. Type of fusing
3. Type of weapon selected
4. None of the above

IN ANSWERING QUESTION 6-44, REFER TO FIGURE 5-9 IN THE TEXTBOOK.

6-44. In the takeoff mode, what is the maximum radar altitude indication?

1. 1,400 ft
2. 1,500 ft
3. 1,600 ft
4. 1,700 ft

6-45. Which of the following is a function of the declutter feature of the AVA-12 HUD?

1. To rearrange the symbols on the HUD
2. To operate the air-to-ground mode
3. To remove preselected unwanted symbols from the display
4. To remove all symbols from the display

6-46. The AVA-12 HUD has what total number of basic modes of operation?

1. One
2. Two
3. Three
4. Five

6-47. Which of the following information is NOT available to the pilot in the landing mode of the AVA-12 HUD?

1. Radar altitude
2. Target designator
3. Angle-of-attack
4. Vertical descent

6-48. On the TDS display, tactical plot data, required to maintain the aircraft position, is limited to what station?

1. Pilot’s
2. Copilot’s
3. Tactical coordinator’s (TACCO‘S)
4. Sensor operator’s (SENSO’s)

6-49. The display generator unit (DGU) sends all data types to all displays.

1. True
2. False

6-50. The data presented on the pilot’s display, produced by the GPDC, is controlled by which, if any, of the following systems?

1. GPDC
2. INCOS
3. DGU
4. None of the above

6-51. Which of the following information is NOT available to the COTAC display?

1. Raw radar
2. S/C radar
3. FLIR
4. MAD

6-52. What is the only information presented on the ARU display?

1. FLIR
2. Analog passive acoustic data
3. MAD
4. Raw radar

6-53. A television system has how many total basic elements?

1. One
2. Two
3. Three
4. Four

6-54. Which of the following is NOT a pickup devise?

1. Image orthicon
2. Microwave relay link
3. SEC tube
4. Vidicon

6-55. What type of scanning is used in television systems?

1. Synchronized
2. Nonsynchronized
3. Horizontal
4. Vertical

IN ANSWERING QUESTION 6-56, REFER TO FIGURE 6-22 IN THE TEXTBOOK.

6-56. In the transmitter, what is added to the electrical picture signal from the camera to make a composite video signal?

1. A sync operator signal
2. A signal from the pickup device
3. A receiver signal
4. A synchronizing signal

6-57. What total amount of time is required for one scan of the picture in the television systems in the United States?

1. 1/15 second
2. 1/30 second
3. 1/60 second
4. 1/75 second

6-58. In commercial broadcast television, for resolution of the fine detail in the horizontal direction, what total number of scanning lines are used?

1. 100
2. 275
3. 350
4. 525

6-59. Of the following scanning methods, which is the simplest?

1. Interlaced
2. Noninterlaced
3. Vertical
4. Horizontal

6-60. Interlaced scanning is used in most television systems for which of the following reasons?

1. To increase flicker
2. To decrease bandwidth by a factor of 2
3. To increase bandwidth by a factor of 2
4. To decrease resolution

6-61. What is the horizontal scanning frequency of commercial broadcast and most CCTV systems?

1. 30 Hz
2. 60 Hz
3. 525 Hz
4. 15,750 Hz

6-62. The standard television signal consists of what total number of elements?

1. One
2. Two
3. Three
4. Four

6-63. For commercial television picture information, what is (a) the maximum percentage for black and (b) the minimum percentage for white of the maximum carrier voltage ?

1. (a) 75 (b) 5
2. (a) 65 (b) 5
3. (a) 75 (b) 15
4. (a) 65 (b) 15

6-64. The kinescope blanking pulse suppresses the scanning beam during what time?

1. Vertical flyback time only
2. Horizontal flyback time only
3. Vertical and horizontal flyback time

6-65. Which, if any, of the following types of picture synchronizing pulses provides a means of frequency discrimination?

1. Vertical sync pulse
2. Horizontal sync pulse
3. Serrated horizontal sync pulse
4. None of the above

6-66. A television system that uses random interlace, no special sync pulses, exhibits which, if any, of the following undesirable characteristics?

1. Circuit complexity
2. Long-range transmission use only
3. Insufficient resolution
4. None of the above

6-67. What is the video bandwidth of a slow-speed scan television system?

1. 500 Hz to 250 kHZ
2. 750 kHz to 10 MHz
3. 10 MHz to 100 MHz
4. 100 MHz to 10 GHz

6-68. If four dynodes having a gain of 5 were used in the image orthicon tube, what would the be the gain of the multiplier section?

1. 5
2. 25
3. 125
4. 625

6-69. The polarity of the signal developed by the isocon is the same as the polarity of the orthicon.

1. True
2. False

6-70. What is the transparent conductive coating on the inner surface of the vidicon camera tube known as?

1. Signal electrode
2. Signal grid
3. Signal cathode
4. Signal anode

6-71. A plumbicon tube with a designation of 67423B has a color response for what color?

1. Red
2. Green
3. Blue
4. White

IN ANSWERING QUESTIONS 6-72 AND 6-73, REFER TO FIGURE 5-31 IN THE TEXTBOOK.

6-72. The tin dioxide contained on the faceplate inner surface is what type of semiconductor?

1. N-type
2. P-type
3. PNP-type
4. NPN-type

6-73. What type of junction is formed in view B?

1. PNP
2. NPN
3. PN
4. PIN

6-74. Which of the following is NOT an application of the SEC tube?

1. Commercial television
2. Extremely low-light
3. High internal amplification
4. Fast response to moving objects

6-75. What is the basic difference between color and monochrome picture tubes?

1. The type of phosphors coating the screen
2. The type of biasing used
3. The cathode circuit
4. The grid circuit